

CLAIMS (29873)

What is claimed is:

1. A method of interpolation for a complementary-color-filtered array image, comprising the steps of:
  - (a) provide a complementary-color-filtered array of pixel values with yellow pixel values  $Y_e$  on a first subarray, cyan pixel values  $C_y$  on a second subarray, magenta pixel values  $M_g$  on a third subarray, and green pixel values  $G$  on a fourth subarray;
  - (b) interpolating the subarray of yellow pixel values to form a yellow array;
  - (c) interpolating the subarray of cyan pixel values to form a cyan array;
  - (d) interpolating the subarray of magenta pixel values to form a magenta array;
  - (e) interpolating the subarray of green pixel values to form a green array;
  - (f) adjusting the color values for each pixel by
    - (i) subtracting a quantity  $(Y_e + C_y - 2*G - M_g)/4$  from  $Y_e$  to generate the pixel's adjusted yellow value where  $Y_e$  is the pixel's yellow value from step (b),  $C_y$  is the pixel's cyan value from step (c),  $M_g$  is the pixel's magenta value from step (d), and  $G$  is the pixel's green value from step (e);
    - (ii) subtracting the quantity  $(Y_e + C_y - 2*G - M_g)/4$  from  $C_y$  to generate the pixel's adjusted cyan value;
    - (iii) adding the quantity  $(Y_e + C_y - 2*G - M_g)/4$  to  $M_g$  to generate the pixel's adjusted magenta value; and
    - (iv) adding the quantity  $(Y_e + C_y - 2*G - M_g)/8$  to  $G$  to generate the pixel's adjusted green value.

2. A method of interpolated complementary-color-filtered array image processing, comprising the steps of:

- (a) provide an interpolated complementary-color-filtered array of pixel values with a pixel's yellow value denoted  $Ye$ , cyan value denoted  $Cy$ , magenta value denoted  $Mg$ , and green value denoted  $G$ ;
- (b) adjusting the color values for each pixel by
  - (i) subtracting a quantity  $(Ye + Cy - 2*G - Mg)/4$  from  $Ye$  to generate the pixel's adjusted yellow value;
  - (ii) subtracting the quantity  $(Ye + Cy - 2*G - Mg)/4$  from  $Cy$  to generate the pixel's adjusted cyan value;
  - (iii) adding the quantity  $(Ye + Cy - 2*G - Mg)/4$  to  $Mg$  to generate the pixel's adjusted magenta value; and
  - (iv) adding the quantity  $(Ye + Cy - 2*G - Mg)/8$  to  $G$  to generate the pixel's adjusted green value.

- 3. An interpolator for complementary-color-filtered array image, comprising
  - (a) an interpolator for the color subarrays of a complementary-color-filtered array;
  - (b) a filter coupled to the output of the interpolator to adjust the interpolated colors at each pixel by adjusting with an imbalance factor for the pixel.